METHOD OF MAKING LAMINATE THIN-WALL CERAMIC TUBES AND SAID TUBES WITH ELECTRODES, PARTICULARLY FOR SOLID OXIDE FUEL CELLS

ABSTRACT OF THE DISCLOSURE

[0093] A method of fabricating a ceramic tube with electrodes thereon suitable for use as a tubular reaction chamber for a fuel cell. In one embodiment, the method includes wrapping a first electrode material around a mandrel, then wrapping a green ceramic material over the first electrode material, and then wrapping a second electrode material over the green ceramic material. The wrapped layers are laminated together, and then removed from the mandrel and sintered, in either sequence, to produce the laminated ceramic tube having an inner first electrode and an outer second electrode. Alternatively, a first electrode tube is provided in place of the mandrel and around which the green ceramic material is wrapped. The outer second electrode may be produced by wrapping a second electrode material around the green ceramic material, before or after laminating, or by printing the electrode material onto the sintered ceramic tube. The present invention further provides a method of making a ceramic tube in which a sacrificial organic material is first wrapped around the mandrel to a desired thickness prior to wrapping the green ceramic material to increase the green material thickness. During sintering, the organic material is burned away leaving only a laminated ceramic tube, optionally with electrodes thereon.